

What is claimed is:

1. A rolling bearing, which is lubricated with a grease,
comprising:

an outer ring having a rolling raceway track on its inner
5 peripheral surface;

an inner ring having a rolling raceway track on its outer
peripheral surface;

a plurality of rolling elements disposed between the
respective raceway tracks of the outer ring and the inner ring;
10 and

a retainer having a plurality of pockets for locking the
rolling elements to freely roll and formed of resin material,

wherein when a diameter of the rolling element is taken
as D_a , a radial clearance gap between a pocket face of the pocket
15 and a rolling face of the rolling element is taken as δr , and
an axial clearance gap between the pocket face of the pocket
and the rolling face of the rolling element is taken as δa ,
in the case where a kinematic viscosity of base oil at 40°C
of the grease is 10 to 40 mm²/sec, at least one of the pockets
20 of the retainer is shaped so that the radial clearance gap ratio
 $\delta r/D_a$ is $0 \leq \delta r/D_a \leq 0.09$, and the axial clearance gap ratio $\delta a/D_a$
is $0 \leq \delta a/D_a \leq 0.06$.

2. A rolling bearing, which is lubricated with a grease,
25 comprising:

an outer ring having a rolling raceway track on its inner peripheral surface;

an inner ring having a rolling raceway track on its outer peripheral surface;

5 a plurality of rolling elements disposed between the respective raceway tracks of the outer ring and the inner ring; and

a retainer having a plurality of pockets for locking the rolling elements to freely roll and formed of resin material,

10 wherein when a diameter of the rolling element is taken as D_a , a radial clearance gap between a pocket face of the pocket and a rolling face of the rolling element is taken as δ_r , and an axial clearance gap between the pocket face of the pocket and the rolling face of the rolling element is taken as δ_a ,
15 in the case where a kinematic viscosity of base oil at 40°C of the grease is 10 to 90 mm²/sec, at least one of the pockets of the retainer is shaped so that the radial clearance gap ratio δ_r/D_a is $0 \leq \delta_r/D_a \leq 0.09$, and the axial clearance gap ratio δ_a/D_a is $0 \leq \delta_a/D_a \leq 0.05$.

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3. A rolling bearing, which is lubricated with a grease, comprising:

an outer ring having a rolling raceway track on its inner peripheral surface;

25 an inner ring having a rolling raceway track on its outer

peripheral surface;

a plurality of rolling elements disposed between the respective raceway tracks of the outer ring and the inner ring;
and

5 a retainer having a plurality of pockets for locking the rolling elements to freely roll and formed of resin material,

wherein when a diameter of the rolling element is taken as D_a , a radial clearance gap between a pocket face of the pocket and a rolling face of the rolling element is taken as δ_r , and
10 an axial clearance gap between the pocket face of the pocket and the rolling face of the rolling element is taken as δ_a ,
in the case where a kinematic viscosity of base oil at 40°C of the grease is 10 to 160 mm²/sec, at least one of the pockets of the retainer is shaped so that the radial clearance gap ratio
15 δ_r/D_a is $0 \leq \delta_r/D_a \leq 0.09$, and the axial clearance gap ratio δ_a/D_a is $0 \leq \delta_a/D_a \leq 0.025$.

4. The rolling bearing according to claim 1, wherein the pockets of the retainer, each of which is shaped so that the
20 radial clearance gap ratio δ_r/D_a is $0 \leq \delta_r/D_a \leq 0.09$, and the axial clearance gap ratio δ_a/D_a is $0 \leq \delta_a/D_a \leq 0.06$, are disposed at substantially equal spaces in at least three places.

5. The rolling bearing according to claim 2, wherein the
25 pockets of the retainer, each of which is shaped so that the

radial clearance gap ratio $\delta r/Da$ is $0 \leq \delta r/Da \leq 0.09$, and the axial clearance gap ratio $\delta a/Da$ is $0 \leq \delta a/Da \leq 0.05$, are disposed at substantially equal spaces in at least three places.

5 6. The rolling bearing according to claim 3, wherein the pockets of the retainer, each of which is shaped so that the radial clearance gap ratio $\delta r/Da$ is $0 \leq \delta r/Da \leq 0.09$, and the axial clearance gap ratio $\delta a/Da$ is $0 \leq \delta a/Da \leq 0.025$, are disposed at substantially equal spaces in at least three places.

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7. A fan motor using a rolling bearing lubricated with a grease, the rolling bearing comprising: an outer ring having a rolling raceway track on its inner peripheral surface; an inner ring having a rolling raceway track on its outer peripheral surface; a plurality of rolling elements disposed between the
15 respective raceway tracks of the outer ring and the inner ring; and a retainer having a plurality of pockets for locking the rolling elements to freely roll and formed of resin material, wherein when a diameter of the rolling element is taken as Da ,
20 a radial clearance gap between a pocket face of the pocket and a rolling face of the rolling element is taken as δr , and an axial clearance gap between the pocket face of the pocket and the rolling face of the rolling element is taken as δa , in the case where a kinematic viscosity of base oil at 40°C of the
25 grease is 10 to 40 mm²/sec, at least one of the pockets of the

retainer is shaped so that the radial clearance gap ratio $\delta r/Da$ is $0 \leq \delta r/Da \leq 0.09$, and the axial clearance gap ratio $\delta a/Da$ is $0 \leq \delta a/Da \leq 0.06$.

5 8. A fan motor using a rolling bearing lubricated with
a grease, the rolling bearing comprising: an outer ring having
a rolling raceway track on its inner peripheral surface; an
inner ring having a rolling raceway track on its outer peripheral
surface; a plurality of rolling elements disposed between the
10 respective raceway tracks of the outer ring and the inner ring;
and a retainer having a plurality of pockets for locking the
rolling elements to freely roll and formed of resin material,
wherein when a diameter of the rolling element is taken as Da ,
a radial clearance gap between a pocket face of the pocket and
15 a rolling face of the rolling element is taken as δr , and an
axial clearance gap between the pocket face of the pocket and
the rolling face of the rolling element is taken as δa , in the
case where a kinematic viscosity of base oil at 40°C of the
grease is 10 to 90 mm²/sec, at least one of the pockets of the
20 retainer is shaped so that the radial clearance gap ratio $\delta r/Da$
is $0 \leq \delta r/Da \leq 0.09$, and the axial clearance gap ratio $\delta a/Da$ is
 $0 \leq \delta a/Da \leq 0.05$.

 9. A fan motor, using a rolling bearing lubricated with
25 a grease, the rolling bearing comprising: an outer ring having

a rolling raceway track on its inner peripheral surface; an inner ring having a rolling raceway track on its outer peripheral surface; a plurality of rolling elements disposed between the respective raceway tracks of the outer ring and the inner ring;
5 and a retainer having a plurality of pockets for locking the rolling elements to freely roll and formed of resin material, wherein when a diameter of the rolling element is taken as D_a , a radial clearance gap between a pocket face of the pocket and a rolling face of the rolling element is taken as δ_r , and an
10 axial clearance gap between the pocket face of the pocket and the rolling face of the rolling element is taken as δ_a , in the case where a kinematic viscosity of base oil at 40°C of the grease is 10 to 160 mm²/sec, at least one of the pockets of the retainer is shaped so that the radial clearance gap ratio
15 δ_r/D_a is $0 \leq \delta_r/D_a \leq 0.09$, and the axial clearance gap ratio δ_a/D_a is $0 \leq \delta_a/D_a \leq 0.025$.

10. The fan motor using a rolling bearing according to claim 7, wherein the pockets of the retainer, each of which
20 is shaped so that the radial clearance gap ratio δ_r/D_a is $0 \leq \delta_r/D_a \leq 0.09$, and the axial clearance gap ratio δ_a/D_a is $0 \leq \delta_a/D_a \leq 0.06$, are disposed at substantially equal spaces in at least three places.

25 11. The fan motor using a rolling bearing according to

claim 8, wherein the pockets of the retainer, each of which is shaped so that the radial clearance gap ratio $\delta r/Da$ is $0 \leq \delta r/Da \leq 0.09$, and the axial clearance gap ratio $\delta a/Da$ is $0 \leq \delta a/Da \leq 0.05$, are disposed at substantially equal spaces in
5 at least three places.

12. The fan motor using a rolling bearing according to claim 9, wherein the pockets of the retainer, each of which is shaped so that the radial clearance gap ratio $\delta r/Da$ is $0 \leq \delta r/Da \leq 0.09$, and the axial clearance gap ratio $\delta a/Da$ is $0 \leq \delta a/Da \leq 0.025$, are disposed at substantially equal spaces in
10 at least three places.

13. A rolling bearing, which is lubricated with a grease,
15 comprising:

an outer ring having a rolling raceway track on its inner peripheral surface;

an inner ring having a rolling raceway track on its outer peripheral surface;

20 a plurality of rolling elements disposed between the respective raceway tracks of the outer ring and the inner ring;
and

a retainer having a plurality of pockets for locking the rolling elements to freely roll and formed of resin material,

25 wherein when a diameter of the rolling element is taken

as D_a , a radial clearance gap between a pocket face of the pocket and a rolling face of the rolling element is taken as δ_r , and an axial clearance gap between the pocket face of the pocket and the rolling face of the rolling element is taken as δ_a ,
5 in the case where the grease including a base oil of a pour point of -30°C or lower is used, at least one of the pockets of the retainer is shaped so that the radial clearance gap ratio δ_r/D_a is $0 \leq \delta_r/D_a \leq 0.09$, and the axial clearance gap ratio δ_a/D_a is $0 \leq \delta_a/D_a \leq 0.06$.

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14. The rolling bearing according to claim 13, wherein the pockets of the retainer, each of which is shaped so that the radial clearance gap ratio δ_r/D_a is $0 \leq \delta_r/D_a \leq 0.09$, and the axial clearance gap ratio δ_a/D_a is $0 \leq \delta_a/D_a \leq 0.06$, are
15 disposed at substantially equal spaces in at least three places.

15. A fan motor using a rolling bearing lubricated with a grease, the rolling bearing comprising: an outer ring having a rolling raceway track on its inner peripheral surface; an
20 inner ring having a rolling raceway track on its outer peripheral surface; a plurality of rolling elements disposed between the respective raceway tracks of the outer ring and the inner ring; and a retainer having a plurality of pockets for locking the rolling elements to freely roll and formed of resin material,
25 wherein when a diameter of the rolling element is taken as

Da, a radial clearance gap between a pocket face of the pocket and a rolling face of the rolling element is taken as δr , and an axial clearance gap between the pocket face of the pocket and the rolling face of the rolling element is taken as δa ,
5 in the case where the grease including a base oil of a pour point of -30°C or lower is used, at least one of the pockets of the retainer is shaped so that the radial clearance gap ratio $\delta r/Da$ is $0 \leq \delta r/Da \leq 0.09$, and the axial clearance gap ratio $\delta a/Da$ is $0 \leq \delta a/Da \leq 0.06$.

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16. The fan motor using a rolling bearing according to claim 15, wherein the pockets of the retainer, each of which is shaped so that the radial clearance gap ratio $\delta r/Da$ is $0 \leq \delta r/Da \leq 0.09$, and the axial clearance gap ratio $\delta a/Da$ is $0 \leq \delta a/Da \leq 0.06$, are disposed at substantially equal spaces in
15 at least three places.

17. A rolling bearing, which is lubricated with a grease, comprising:

20 an outer ring having a rolling raceway track on its inner peripheral surface;

an inner ring having a rolling raceway track on its outer peripheral surface;

a plurality of rolling elements disposed between the
25 respective raceway tracks of the outer ring and the inner ring;

and

a retainer having a plurality of pockets for locking the rolling elements to freely roll and formed of resin material,

wherein when a diameter of the rolling element is taken
5 as D_a , a radial clearance gap between a pocket face of the pocket and a rolling face of the rolling element is taken as δ_r , and an axial clearance gap between the pocket face of the pocket and the rolling face of the rolling element is taken as δ_a ,
in the case where the grease containing 20 mass % or less thickener
10 is used, at least one of the pockets of the retainer is shaped so that the radial clearance gap ratio δ_r/D_a is $0 \leq \delta_r/D_a \leq 0.09$, and the axial clearance gap ratio δ_a/D_a is $0 \leq \delta_a/D_a \leq 0.06$.

15 18. The rolling bearing according to claim 17, wherein the pockets of the retainer, each of which is shaped so that the radial clearance gap ratio δ_r/D_a is $0 \leq \delta_r/D_a \leq 0.09$, and the axial clearance gap ratio δ_a/D_a is $0 \leq \delta_a/D_a \leq 0.06$, are disposed at substantially equal spaces in at least three places.

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19. A fan motor using a rolling bearing lubricated with a grease, the rolling bearing comprising: an outer ring having a rolling raceway track on its inner peripheral surface; an inner ring having a rolling raceway track on its outer peripheral
25 surface; a plurality of rolling elements disposed between the

respective raceway tracks of the outer ring and the inner ring;
and a retainer having a plurality of pockets for locking the
rolling elements to freely roll and formed of resin material,
wherein, when a diameter of the rolling element is taken as
5 D_a , a radial clearance gap between a pocket face of the pocket
and a rolling face of the rolling element is taken as δ_r , and
an axial clearance gap between the pocket face of the pocket
and the rolling face of the rolling element is taken as δ_a ,
in the case where the grease containing 20 mass % or less thickener
10 is used, at least one of the pockets of the retainer is shaped
so that the radial clearance gap ratio δ_r/D_a is $0 \leq \delta_r/D_a \leq$
 0.09 , and the axial clearance gap ratio δ_a/D_a is $0 \leq \delta_a/D_a \leq$
 0.06 .

15 20. The fan motor using a rolling bearing according to
claim 19, wherein the pockets of the retainer, each of which
is shaped so that the radial clearance gap ratio δ_r/D_a is 0
 $\leq \delta_r/D_a \leq 0.09$, and the axial clearance gap ratio δ_a/D_a is 0
 $\leq \delta_a/D_a \leq 0.06$, are disposed at substantially equal spaces in
20 at least three places.